

10/586,133

STM-Structure Search

11/13/07

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L9 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:1142135 CAPLUS

DOCUMENT NUMBER: 147:460106

TITLE: Liquid crystalline polycyclic aromatic tetracarboxylic acid derivatives as n-type semiconductors for use in organic field effect transistors and solar cells

INVENTOR(S): Koenemann, Martin; Pschirer, Neil Gregory; Muellen, Klaus; Nolde, Fabian; Pisula, Wojcieh; Mueller, Sybille; Kohl, Christopher

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: Eur. Pat. Appl., 76pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

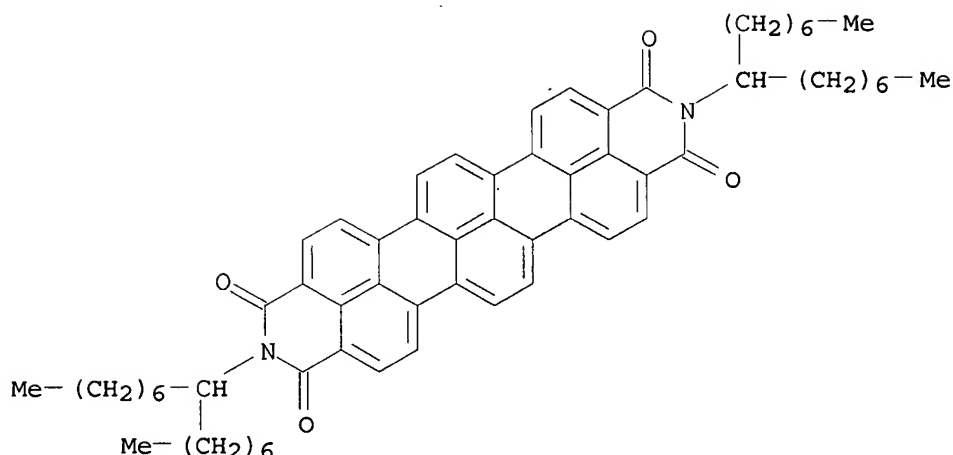
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------|------------|
| EP 1843407 | A1 | 20071010 | EP 2006-7415 | 20060407 |
| R: | AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU | | | |
| WO 2007116001 | A2 | 20071018 | WO 2007-EP53330 | 20070404 |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | |
| RW: | AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| PRIORITY APPLN. INFO.: | | | EP 2006-7415 | A 20060407 |

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REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:538955 CAPLUS

DOCUMENT NUMBER: 146:524948

TITLE: Use of rylene derivatives as photosensitizers in solar cells

INVENTOR(S): Pschirer, Neil Gregory; Eickemeyer, Felix; Schoeneboom, Jan; Qu, Jianqiang; Koenemann, Martin; Muellen, Klaus; Li, Chen; Herrmann, Andreas; Erk, Peter; Nordmann, Gero; Kuhn, Alfred; Hagfeldt, Anders; Edvinsson, Tomas

PATENT ASSIGNEE(S): Basf A.-G., Germany; Max-Planck-Gesellschaft zur Foerderung der Wissenschaft E. V.

SOURCE: PCT Int. Appl., 179pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

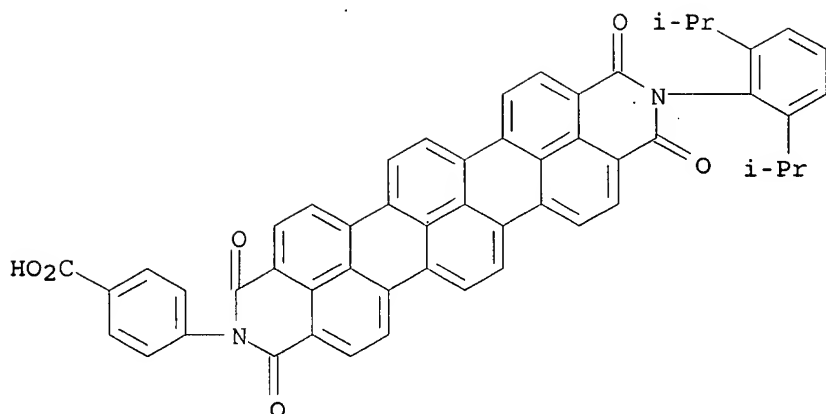
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

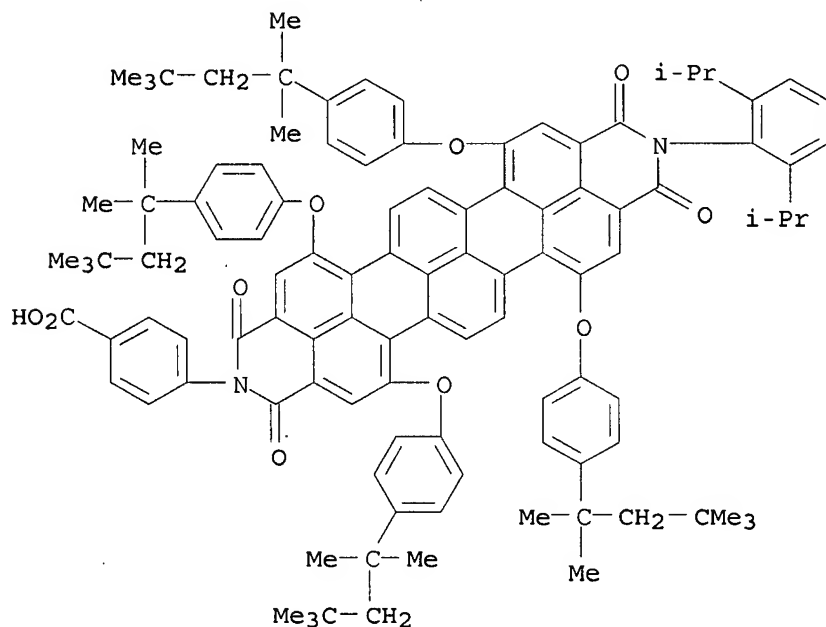
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|-----------------------|----------|
| WO 2007054470 | A1 | 20070518 | WO 2006-EP68102 | 20061106 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| DE 102005053995 | A1 | 20070524 | DE 2005-102005053995 | 20051110 |
| PRIORITY APPLN. INFO.: | | | DE 2005-102005053995A | 20051110 |
| OTHER SOURCE(S): MARPAT 146:524948 | | | | |

AB Rylene derivs. are prepared and described for use as photosensitizers for solar cells. These derivs., which have a high incident photon-to-current conversion efficiency, are especially useful in solar cells for the decomposition of



RN 937041-05-9 CAPLUS

CN Benzoic acid, 4-[11-[2,6-bis(1-methylethyl)phenyl]-3,10,11,12-tetrahydro-1,3,10,12-tetraoxo-5,8,14,17-tetrakis[4-(1,1,3,3-tetramethylbutyl)phenoxy]benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinolin-2(1H)-yl]- (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2007:145897 CAPLUS
 DOCUMENT NUMBER: 146:230989
 TITLE: Rylene-based multi-chromophore dyes
 INVENTOR(S): Koenemann, Martin
 PATENT ASSIGNEE(S): Basf Aktiengesellschaft, Germany
 SOURCE: PCT Int. Appl., 110pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|-------------------|-----------------------|----------|
| WO 2007014902 | A2 | 20070208 | WO 2006-EP64733 | 20060727 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| DE 102005037115 | A1 | 20070208 | DE 2005-102005037115 | 20050803 |
| PRIORITY APPLN. INFO.: | | | DE 2005-102005037115A | 20050803 |
| OTHER SOURCE(S): | | MARPAT 146:230989 | | |
| GI | | | | |

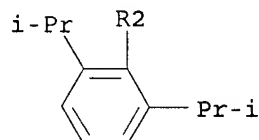
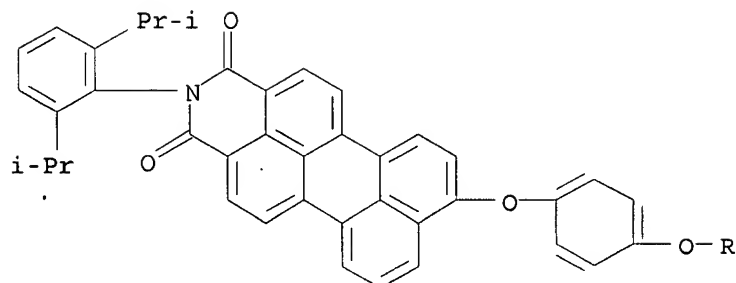
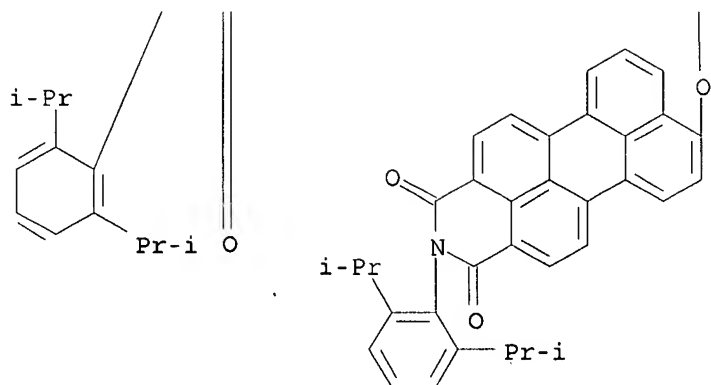
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Functionalized with imide-, ester-, or amide groups rylene-based multi-chromophore dyes optionally addnl. substituted with aryloxy, arylthio, heteroaryloxy and/or heteroarylthio groups are useful for coloring organic and inorg. materials, for invisible IR-absorbing markings, as IR absorbers in thermal management, for laser marking, as semiconductor materials for organic electronics, , as emitters in chemiluminescent applications, as markers for detection techniques, and as active components in photovoltaic technol. Thus, mixing 24 h at 80° 30 mL N-methylpyrrolidone, 4.15 g K₂CO₃, 6.60 g hydroquinone and 4.15 g N-(2,6-diisopropylphenyl)-4-chloronaphthalenedicarboxylic acid imide gave rylene dicarboxylic acid imide (I), which was used for manufacture a mixture of isomers II and III having absorption maximum 351.52 nm and fluorescent maximum 575 nm (CH₂Cl₂) by mixing 28 h at room temperature under N₂ 4.6 g I, 0.86 g K₂CO₃, 50 mL N-methylpyrrolidone and 4.34 g a mixture of N,N'-bis(2,6-diisopropylphenyl)-1,7- and 1,6-dibromoperylene-3,4:9,10-tetracarboxylic acid diimides at ratio 75:25.

IT 923584-49-0P 923584-57-0P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (functionalized with imide-, ester-, or amide groups rylene-based multi-chromophore dyes)

RN 923584-49-0 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-8-(4-hydroxyphenoxy)- (CA INDEX NAME)



L9 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2007:53927 CAPLUS
 DOCUMENT NUMBER: 146:144285
 TITLE: Substituted rylene derivatives and their uses
 INVENTOR(S): Koenemann, Martin; Boehm, Arno; Pschirer, Neil
 Gregory; Qu, Jianqiang; Mattern, Gabriele
 PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
 SOURCE: PCT Int. Appl., 55pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------|----------|
| WO 2007006717 | A1 | 20070118 | WO 2006-EP63955 | 20060706 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, | | | | |

KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN,
 MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU,
 SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
 US, UZ, VC, VN, ZA, ZM, ZW
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM

DE 102005032583 A1 20070125 DE 2005-102005032583 20050711

PRIORITY APPLN. INFO.:

DE 2005-102005032583A 20050711

OTHER SOURCE(S): MARPAT 146:144285

AB Rylene derivs., especially perylene derivs. and terrylene derivs., are described

which comprise a rylene group (a conjugated polycyclic ring system with ≥ 1 perylene unit which may include heteroatoms as ring atoms and which may be functionalized by CO groups) with 1-8 substituents selected from substituted Ph groups joined to the rylene group via a S or O atom. The derivs. may be used for coloring organic and inorg. materials, in the production of electromagnetic radiation-absorbing and/or emitting aqueous

polymer

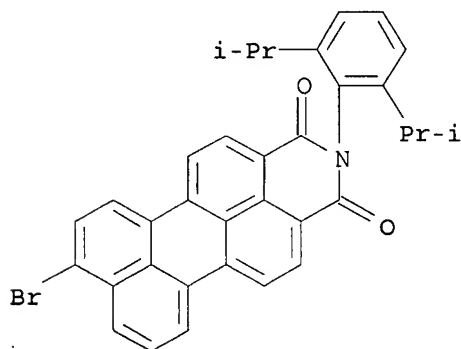
dispersions, for invisible IR-absorbing markings, as IR absorbers in thermal management, as IR laser absorbers for welding plastics, for laser marking, as semiconductor materials for organic electronics, as filters or emitters for displays, as emitters in chemiluminescent applications, as markers for detection techniques, and as active components in photovoltaic technol.

IT 165550-62-9

RL: RCT (Reactant); RACT (Reactant or reagent)
 (substituted rylene derivs. and their uses)

RN 165550-62-9 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-8-bromo- (CA INDEX NAME)

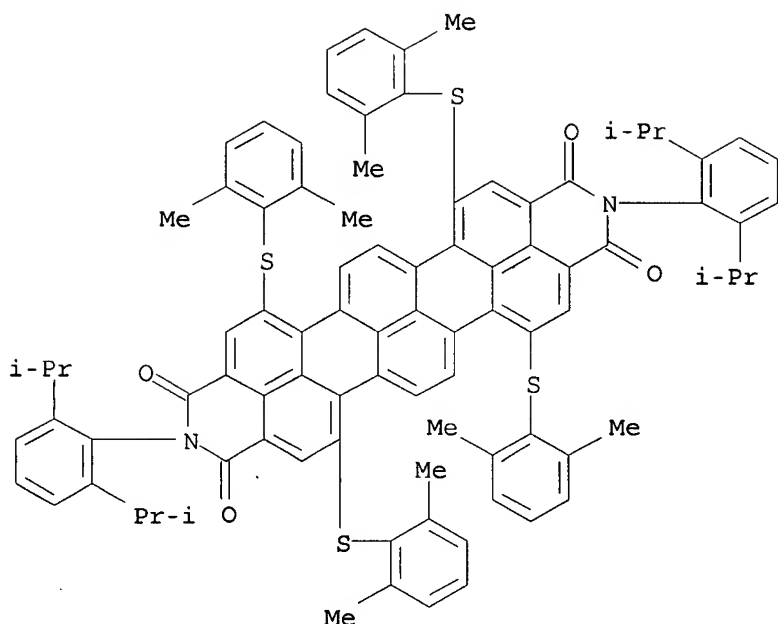


IT 919488-80-5P 919488-85-0P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (substituted rylene derivs. and their uses)

RN 919488-80-5 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 5,8,14,17-tetrakis[2,6-bis(1-methylethyl)phenoxy]-2,11-bis[2,6-bis(1-methylethyl)phenyl]- (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:685234 CAPLUS

DOCUMENT NUMBER: 145:314798

TITLE: Synthesis and Self-Organization of Core-Extended Perylene Tetracarboxdiimides with Branched Alkyl Substituents

AUTHOR(S): Nolde, Fabian; Pisula, Wojciech; Mueller, Sibylle; Kohl, Christopher; Muellen, Klaus

CORPORATE SOURCE: Max-Planck-Institute for Polymer Research, Mainz, D-55128, Germany

SOURCE: Chemistry of Materials (2006), 18(16), 3715-3725
CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

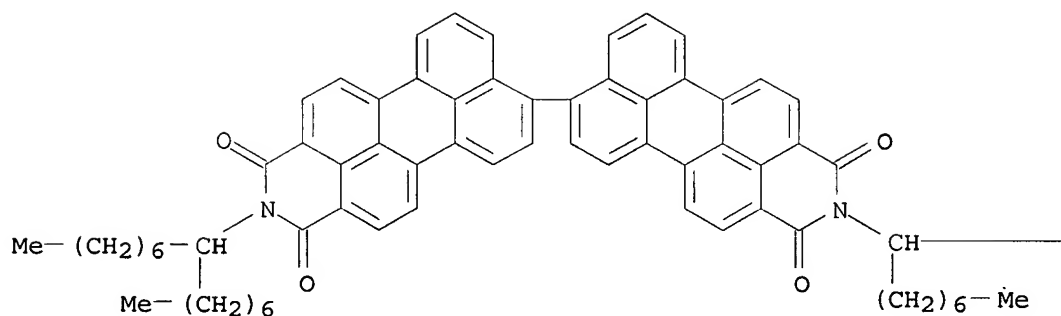
DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 145:314798

AB The influence of the core extension of perylene tetracarboxdiimides on the thermotropic behavior has been investigated. A homologous series of alkyl-substituted tetracarboxdiimides, namely, perylene diimide, terrylene diimide, quaterrylene diimide, and coronene diimide, was synthesized. These compds. display absorption maxima in the region of 430-760 nm with high extinction coeffs. and show a high thermal stability up to 450 °C. Structural evaluation revealed an identical columnar self-organization for the derivs. below their isotropization temperature. An intracolumnar packing of the disks with a lateral rotation of 45° to each other resulted in a helical pitch containing four mols. The phase transition to the isotropic phase is shifted to higher temps. for larger aromatic cores within this series of compds. On the other hand, differences in the self-assembly during crystallization from the isotropic phase were observed.

While perylene tetracarboxdiimide and terrylene tetracarboxdiimide formed large and highly ordered domains with arranged edge-on mols., the coronene tetracarboxdiimide disks self-organized face-on leading to a homeotropic phase. The different mol. orientation on surfaces was correlated with diversified substitution patterns of the aromatic cores. The manipulation of



— (CH₂)₆—Me

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:319510 CAPLUS

DOCUMENT NUMBER: 144:370076

TITLE: Halogenation process for the production of halogenated polycyclic aromatic carboxylic acid imides

PATENT ASSIGNEE(S): BASF A.-G., Germany

SOURCE: Ger. Offen., 11 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

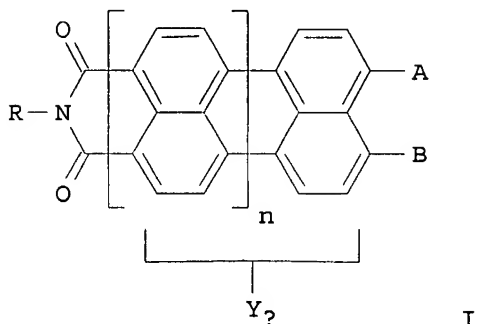
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|----------------------|----------|
| DE 102004048729 | A1 | 20060406 | DE 2004-102004048729 | 20041005 |
| WO 2006037539 | A1 | 20060413 | WO 2005-EP10490 | 20050928 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| EP 1802622 | A1 | 20070704 | EP 2005-792312 | 20050928 |

10/586,133

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR

CN 101035788 A 20070912 CN 2005-80033754 20050928
PRIORITY APPLN. INFO.: DE 2004-102004048729A 20041005
WO 2005-EP10490 W 20050928

OTHER SOURCE(S): MARPAT 144:370076
GI

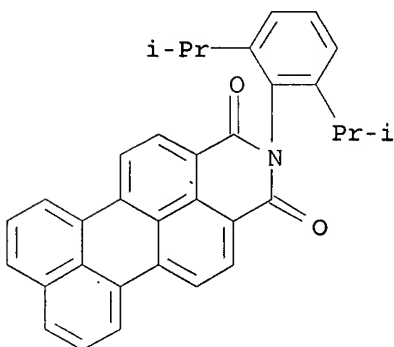


AB Halogenated polycyclic aromatic carboxylic acid imides [I; A, B taken together form an imide group OCNR1CO, or if n = 1 then A, B = halogen H; R, R1 = hydrogen, (un)substituted alkyl, cycloalkyl, aryl, heteroaryl; Y = chlorine, bromine, iodine; n = 1-3; x = 2-8; e.g., N,N'-bis(2,6-diisopropylphenyl)hexabromoquaterrylene-3,4:13,14-tetracarboxylic diimide] are prepared in high yield and selectivity by halogenation of the unhalogenated imide or diimide with elemental halogen in the presence of an inert organic solvent and one exts. the hydrogen halide formed during the conversion from the solvent continuously.

IT 165550-61-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(halogenation process for the production of halogenated polycyclic aromatic carboxylic acid imides)

RN 165550-61-8 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-
(CA INDEX NAME)



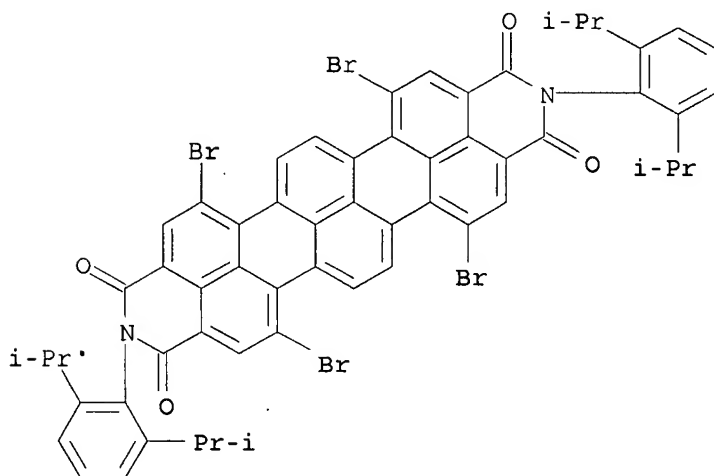
IT 464885-23-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(halogenation process for the production of halogenated polycyclic aromatic carboxylic acid imides)

RN 464885-23-2 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-

10/586,133

1,3,10,12(2H,11H)-tetrone, 2,11-bis[2,6-bis(1-methylethyl)phenyl]-
5,8,14,17-tetrabromo- (CA INDEX NAME)



L9 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:696881 CAPLUS

DOCUMENT NUMBER: 143:195248

TITLE: Method for the production of terrylene-3,4,11,12-tetracarboxylic diimides by direct synthesis

INVENTOR(S): Koenemann, Martin; Boehm, Arno; Helfer, Willi; Romeis, Juergen; Qu, Jianqiang; Muellen, Klaus

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany; Max-Planck-Gesellschaft zur Foerderung Der Wissenschaften E.V.

SOURCE: PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

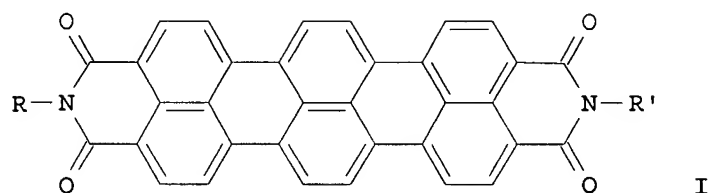
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------------|------------|
| WO 2005070895 | A1 | 20050804 | WO 2005-EP378 | 20050115 |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | |
| RW: | BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | |
| DE 102004003734 | A1 | 20050811 | DE 2004-102004003734 | 20040123 |
| EP 1711469 | A1 | 20061018 | EP 2005-700962 | 20050115 |
| R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | |
| CN 1910155 | A | 20070207 | CN 2005-80002917 | 20050115 |
| JP 2007522121 | T | 20070809 | JP 2006-549994 | 20050115 |
| US 2007155968 | A1 | 20070705 | US 2006-586133 | 20060717 |
| PRIORITY APPLN. INFO.: | | | DE 2004-102004003734A | 20040123 |
| | | | WO 2005-EP378 | W 20050115 |

10/586,133

OTHER SOURCE(S):
GI

CASREACT 143:195248; MARPAT 143:195248



AB The invention relates to a method for the production of diimides I: R, R' independently are H, optionally substituted alkyl or cycloalkyl, aryl or heteroaryl, R1 = H or alkyl; R2 = H, alkyl, optionally substituted aryl or heteroaryl, whereby a N-substituted perylene-3,4-dicarboxylic acid imide is reacted with a N-substituted naphthalene-1,8-dicarboxylic acid imide optionally substituted at the 4 position with Br or Cl in the presence of a base-stable, high boiling organic solvent and an alkali or alkaline earth metal base.

IT 187536-95-4P 452084-79-6P 634613-10-8P

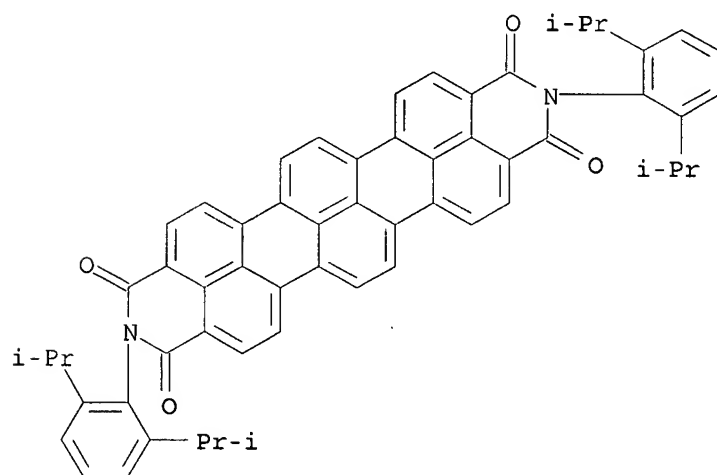
634613-13-1P 634613-14-2P 861411-09-8P

RL: IMF (Industrial manufacture); PREP (Preparation)

(production of terrylenetetracarboxylic diimides by cyclization of corresponding naphthalenedicarboxylic acid imides with perylenedicarboxylic acid imides)

RN 187536-95-4 CAPLUS

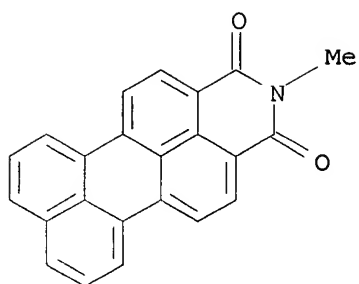
CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2,11-bis[2,6-bis(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)



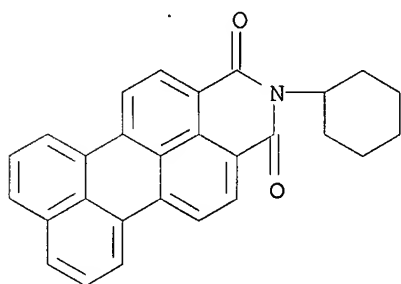
RN 452084-79-6 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2-[2,6-bis(1-methylethyl)phenyl]-11-cyclohexyl- (9CI) (CA INDEX NAME)

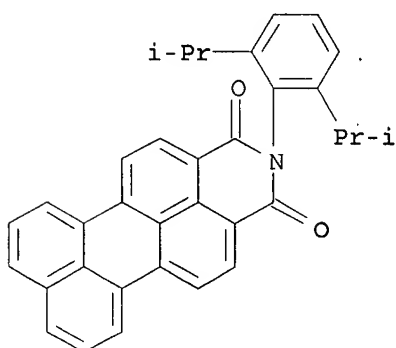
10/586,133



RN 165261-30-3 CAPLUS
CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-cyclohexyl- (9CI) (CA INDEX NAME)



RN 165550-61-8 CAPLUS
CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]- (CA INDEX NAME)

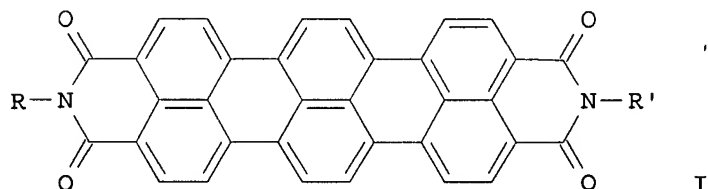


REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

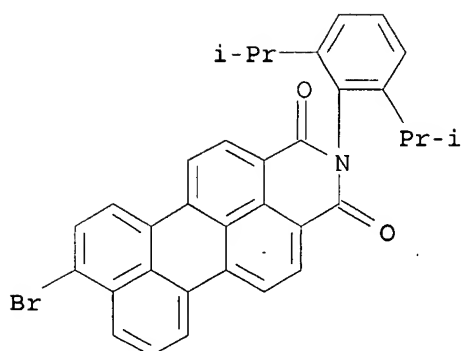
L9 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:696880 CAPLUS
DOCUMENT NUMBER: 143:195247
TITLE: Method for producing terrylene-3,4,11,12-tetracarboxylic acid diimides
INVENTOR(S): Koenemann, Martin; Muellen, Klaus; Reuther, Erik
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany; Max-Planck-Gesellschaft zur Foerderung Der Wissenschaften E.V.
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

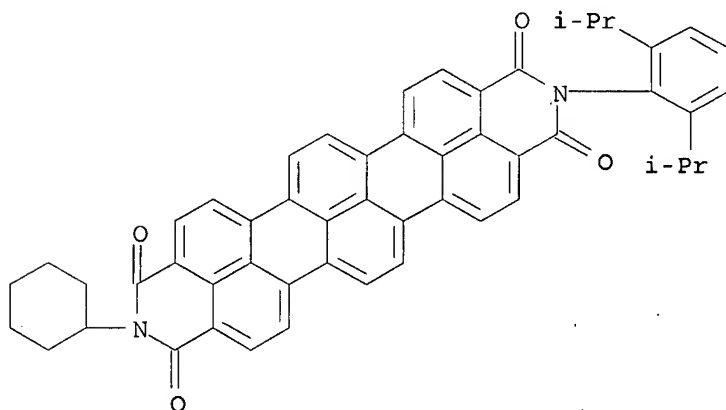
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|-----------------------|------------|
| WO 2005070894 | A1 | 20050804 | WO 2005-EP314 | 20050114 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| DE 102004003735 | A1 | 20050811 | DE 2004-102004003735 | 20040123 |
| EP 1713777 | A1 | 20061025 | EP 2005-700915 | 20050114 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS | | | | |
| PRIORITY APPLN. INFO.: | | | DE 2004-102004003735A | 20040123 |
| | | | WO 2005-EP314 | W 20050114 |
| OTHER SOURCE(S): | | | MARPAT 143:195247 | |
| GI | | | | |



AB The invention relates to a method for producing imides I, wherein R and R' are independently hydrogen, possibly substituted C1-30-alkyl, C5-8-cycloalkyl, aryl or heteroaryl consisting in (a) reacting a diborane in the presence an aprotic organic solvent, a transition metal-based catalyst and a base with (a1) a N-substituted 9-bromoperylene-3,4-dicarboxylic acid imide or (a2) a 4- and N-substituted naphthalene-1,8-dicarboxylic acid imide, (b1) reacting the resulting N-substituted 9-(dioxaborolan-2-yl)perylene-3,4-dicarboxylic acid imide in the presence of an organic solvent preferably mixed with water, a transition metal-based catalyst and a base in a Suzuki coupling reaction with a 4- and N-substituted naphthalene-1,8-dicarboxylic acid imide or (b2) reacting the resulting N-substituted 4-(dioxaborolan-2-yl)naphthalene-1,8-dicarboxylic acid imide in the presence of an organic solvent preferably mixed with water, a transition metal-based catalyst and a base in a Suzuki coupling reaction with a N-substituted 9-bromo-perylene-3,4-dicarboxylic acid imide and (c) cyclizing the resulting 9-(4-naphthalene-1,8-dicarboxylic acid imide)perylene-3,4-dicarboxylic acid imide in a medium exhibiting hydroxy and amino functions and containing an insol. base. This process produces the diimides without the use of Sn compds. and(or) strong bases in high amts. in good yields and short reaction times. Thus, I (R = 2,6-diisopropylphenyl, R' = cyclohexyl) was manufactured by heating PhMe containing



IT 452084-79-6P, N-Cyclohexyl-N'-(2,6-diisopropylphenyl)-3,4,11,12-Terrylene-tetracarboxylic diimide
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (producing N-substituted terrylene-tetracarboxylic acid diimides in Suzuki reactions)
 RN 452084-79-6 CAPLUS
 CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2-[2,6-bis(1-methylethyl)phenyl]-11-cyclohexyl-(9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2005:590447 CAPLUS
 DOCUMENT NUMBER: 143:231352
 TITLE: Synthesis and modification of terrylenediimides as high-performance fluorescent dyes
 AUTHOR(S): Nolde, Fabian; Qu, Jianqiang; Kohl, Christopher; Pschirer, Neil G.; Reuther, Erik; Muellen, Klaus
 CORPORATE SOURCE: Max-Planck-Institute for Polymer Research, Mainz, 55128, Germany
 SOURCE: Chemistry--A European Journal (2005), 11(13), 3959-3967
 CODEN: CEUJED; ISSN: 0947-6539
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 143:231352

AB Two synthetic approaches to terrylenediimides, highly photostable fluorescent dyes, are described. One of the approach replaces a previously used toxic stannyl derivative with a boronic ester as the starting material. Terrylenediimides are synthesized in a straightforward procedure that makes large quantities available. The other route includes an efficient cross-coupling reaction followed by a cyclodehydrogenation. Monofunctionalization of the imide structure allows terrylenediimides to be coupled with a variety of compds., for example, by Suzuki crosscoupling, which can lead to an array of terrylenediimides with new functional groups such as hydroxy, amino, or carboxy groups needed to link up with other mols. The functionalization in the bay region is used to tune the properties of terrylenediimides and extend the range of applications, for example, by introducing water solubility. These tetrasubstituted terrylenediimides offer, depending on the substituents used, properties such as good solubility in common organic solvents, water solubility,

or NIR absorption.

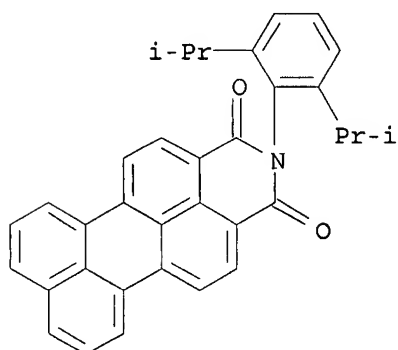
IT 165550-61-8 695152-67-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis and modification of terrylenediimides as high-performance fluorescent dyes)

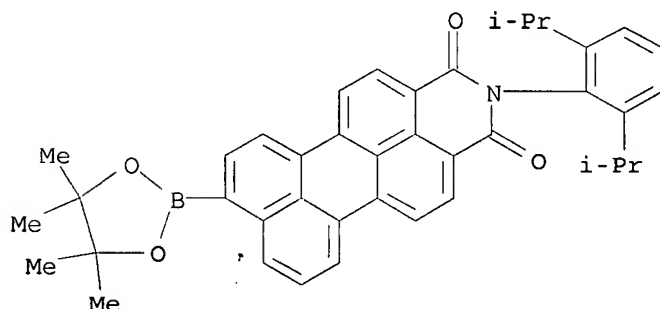
RN 165550-61-8 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-(CA INDEX NAME)



RN 695152-67-1 CAPLUS

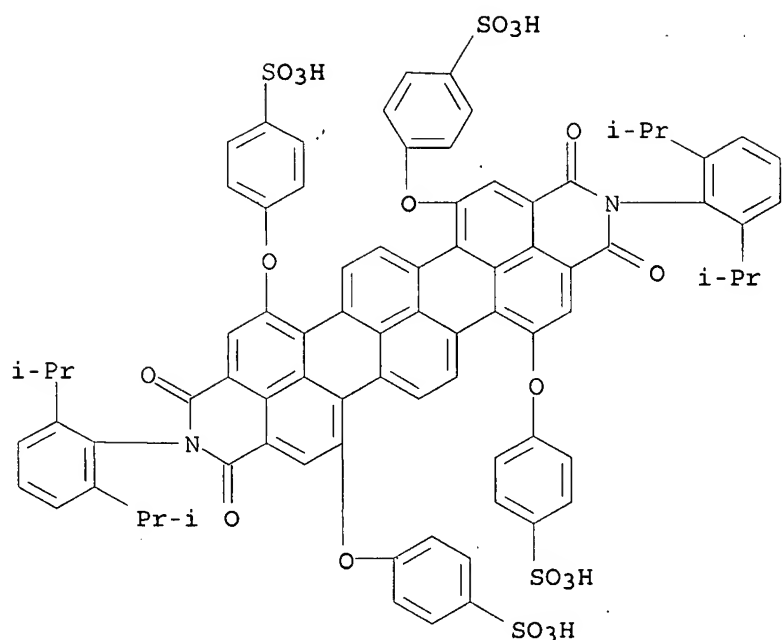
CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-8-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)-(CA INDEX NAME)



IT 187536-84-1P 187536-92-1P 861454-89-9P

862852-52-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)



REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:288757 CAPLUS

DOCUMENT NUMBER: 141:7581

TITLE: Synthesis and characterization of dendritic multichromophores based on rylene dyes for vectorial transduction of excitation energy

AUTHOR(S): Weil, Tanja; Reuther, Erik; Beer, Cornelia; Muellen, Klaus

CORPORATE SOURCE: Max-Planck-Institute for Polymer Research, Mainz, 55128, Germany

SOURCE: Chemistry--A European Journal (2004), 10(6), 1398-1414

CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The synthesis of dendritic multichromophores based on a rigid polyphenylene scaffold is presented. Different rylene chromophores are incorporated into the core, the branches, and the surface of the dendrimer. In this way, two generations of dendritic dyads consisting of a terrylenediimide core, a stiff polyphenylene scaffold, and a perylenemonoimide periphery were obtained. Furthermore, the first synthetic approach to a dendritic triad is introduced. The outer sphere of this macromol. is formed by naphthalenemonoimide chromophores, whereas perylenemonoimide groups are located in the dendritic scaffold, and the terrylenediimide chromophore serves as a core mol. This multichromophore absorbs over the whole range of the visible spectrum and shows well-separated absorption envelopes. In the course of dendrimer synthesis new attempts towards a straightforward functionalization strategy for rylene dyes are also presented.

IT 695152-67-1

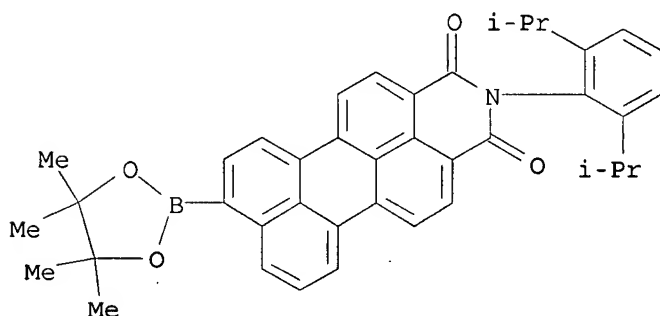
RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of dendritic multichromophores based on rylene dyes for vectorial transduction of excitation energy)

RN 695152-67-1 CAPLUS

10/586,133

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-
8-(4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)- (CA INDEX NAME)



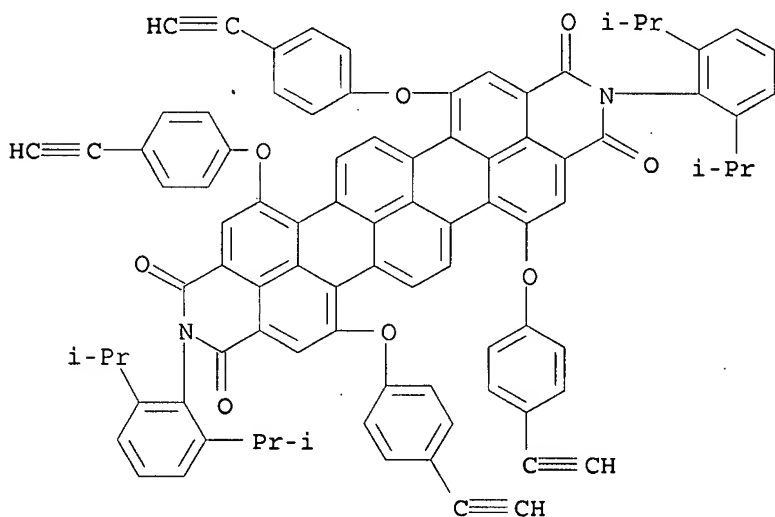
IT 457047-90-4P 457047-93-7P 457047-99-3P
457048-06-5P 464885-23-2P 634612-93-4P
695152-66-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)

(in preparation of dendritic multichromophores based on rylene dyes for
vectorial transduction of excitation energy)

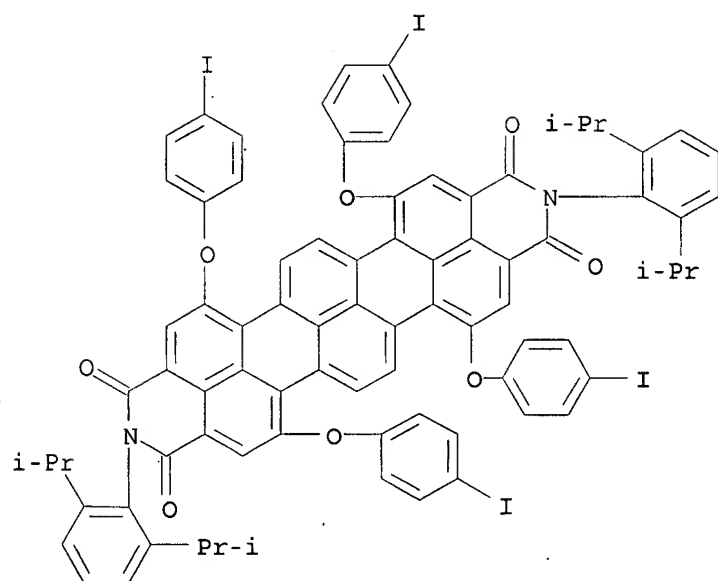
RN 457047-90-4 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-
1,3,10,12(2H,11H)-tetrone, 2,11-bis[2,6-bis(1-methylethyl)phenyl]-
5,8,14,17-tetrakis(4-ethynylphenoxy)- (9CI) (CA INDEX NAME)



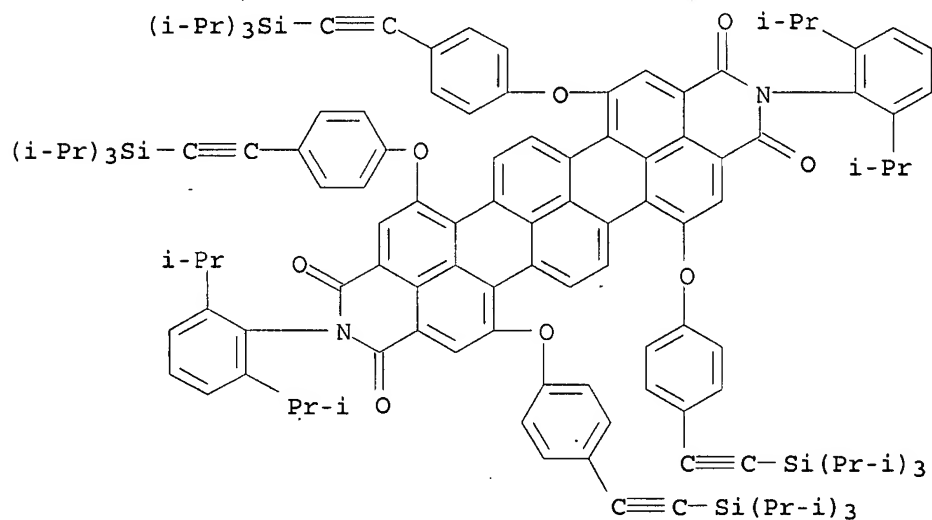
RN 457047-93-7 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-
8-[4-(3-oxo-2,4,5-triphenyl-1,4-cyclopentadien-1-yl)phenyl]- (CA INDEX
NAME)



RN 695152-66-0 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-
 1,3,10,12(2H,11H)-tetrone, 2,11-bis[2,6-bis(1-methylethyl)phenyl]-
 5,8,14,17-tetrakis[4-[[tris(1-methylethyl)silyl]ethynyl]phenoxy] - (9CI)
 (CA INDEX NAME)



REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:471575 CAPLUS

DOCUMENT NUMBER: 137:233014

TITLE: Shape-persistent, fluorescent polyphenylene diads and
 a triad for efficient vectorial transduction of
 excitation energy

AUTHOR(S): Weil, Tanja; Reuther, Erik; Mullen, Klaus

CORPORATE SOURCE: Max-Planck-Institut für Polymerforschung Ackermannweg
 10, Mainz, 55128, Germany

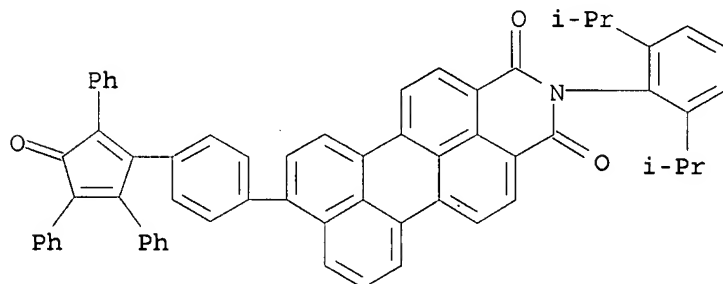
SOURCE: Angewandte Chemie, International Edition (2002),
41(11), 1900-1904
CODEN: ACIEF5; ISSN: 1433-7851
PUBLISHER: Wiley-VCH Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Dendritic multi-chromophores based on a rigid polyphenylene scaffold contain up to three different types of rylene chromophores incorporated at the focal point, the scaffold, and the periphery of the dendrimer. The light-harvesting array design is based on a polyphenylene dendrimer bearing terrylene tetracarboxydiimide in the center and perylene dicarboxymonoimide and naphthalene dicarboxymonoimide chromophores in the periphery. The synthesis of the multi-chromophores is based on convergent and divergent approach by repetitive Diels-Alder cycloaddn. of the core with cyclopentadienone bearing the resp. chromophores. An energy gradient between the periphery and the core is thus generated and allows an efficient transfer of excitation energy.

IT 457047-93-7
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(preparation and structure and vectorial excitation energy transfer in shape-persistent fluorescent polyphenylene dendrimers with multi-chromophore periphery)

RN 457047-93-7 CAPLUS

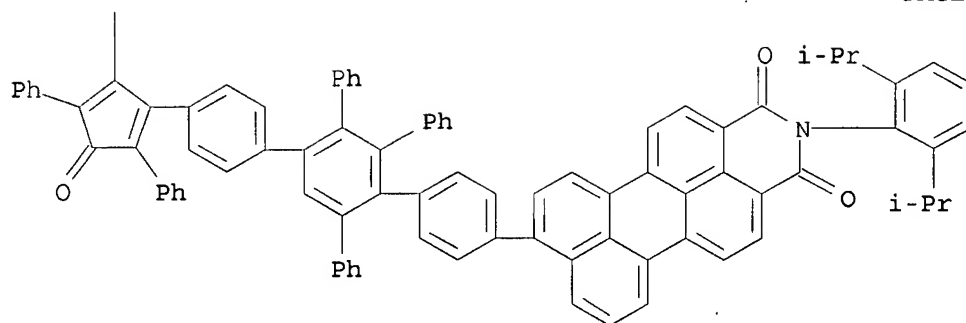
CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-8-[4-(3-oxo-2,4,5-triphenyl-1,4-cyclopentadien-1-yl)phenyl]- (CA INDEX NAME)



IT 187536-95-4DP, reaction products with polyphenylene dendrimers
RL: PRP (Properties); SPN (Synthetic preparation); PREP
(Preparation)
(preparation and structure and vectorial excitation energy transfer in shape-persistent fluorescent polyphenylene dendrimers with multi-chromophore periphery)

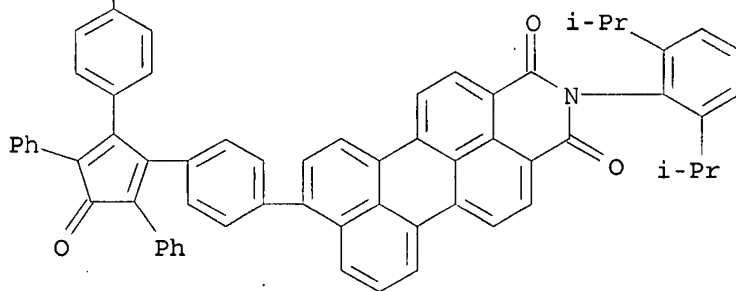
RN 187536-95-4 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2,11-bis[2,6-bis(1-methylethyl)phenyl]- (9CI)
(CA INDEX NAME)



RN 457048-06-5 CAPLUS
 CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-
 8-[4-[3-oxo-2,4-diphenyl-5-[4-[[tris(1-methylethyl)silyl]ethynyl]phenyl]-
 1,4-cyclopentadien-1-yl]phenyl]- (9CI) (CA INDEX NAME)

(i-Pr)₃Si-C≡C-



REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:70694 CAPLUS

DOCUMENT NUMBER: 136:371066

TITLE: Synthesis and properties of terrylenedicarboximide
 derivatives

AUTHOR(S): Nagao, Yukinori; Iwawaki, Hironobu; Kozawa, Kozo

CORPORATE SOURCE: Department of Industrial Chemistry, Faculty of Science
 and Technology, Science University of Tokyo, Chiba,
 278-8510, Japan

SOURCE: Heterocycles (2002), 56(1-2), 331-340

CODEN: HTCYAM; ISSN: 0385-5414

PUBLISHER: Japan Institute of Heterocyclic Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 136:371066

AB Terrylenedicarboximide derivs. were prepared by the coupling of
 N-alkyl-9-tributylstannylperylene-3,4-dicarboximides with
 4-bromo-1,8-naphthalimide derivative and the following ring closure reaction.
 Spectral properties in solution or in the solid state and the thermal
 stability of these derivs. were investigated.

IT 423774-66-7P 423774-67-8P

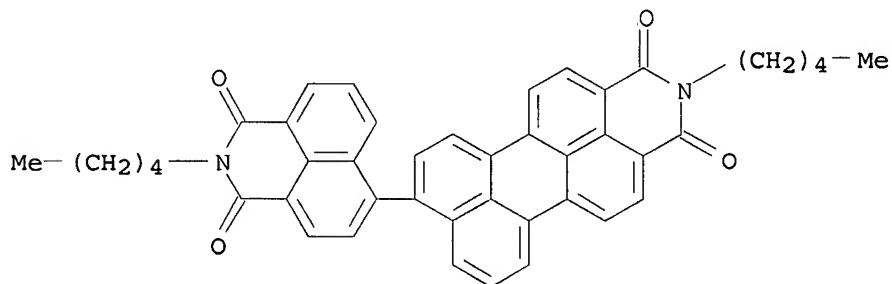
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)

(intermediate; synthesis and properties of terrylenedicarboximide
 derivative dyes)

10/586,133

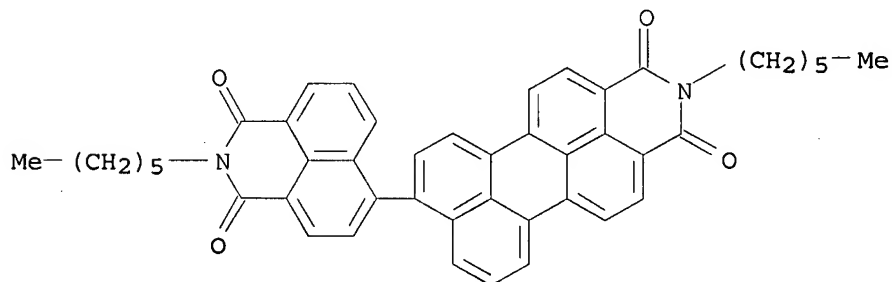
RN 423774-66-7 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 8-(2,3-dihydro-1,3-dioxo-2-pentyl-1H-benz[de]isoquinolin-6-yl)-2-pentyl- (9CI) (CA INDEX NAME)



RN 423774-67-8 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 8-(2-hexyl-2,3-dihydro-1,3-dioxo-1H-benz[de]isoquinolin-6-yl)-2-hexyl- (9CI) (CA INDEX NAME)

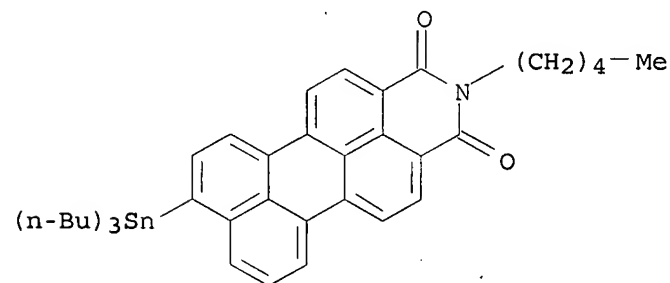


IT 423774-70-3 423774-71-4

RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; synthesis and properties of terrylenedicarboximide derivative dyes)

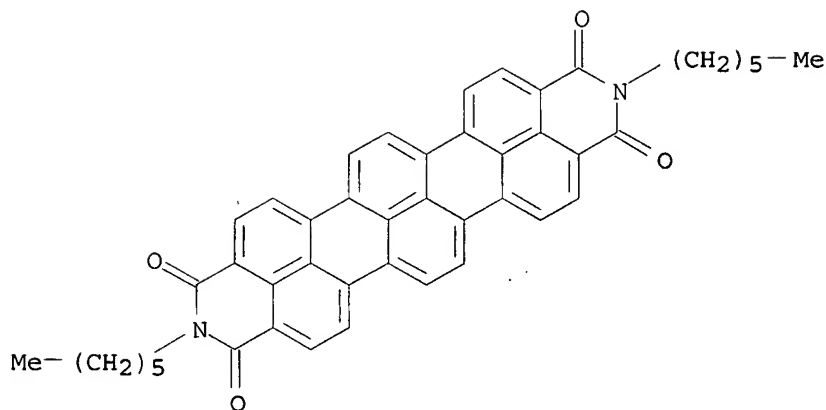
RN 423774-70-3 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-pentyl-8-(tributylstannyl)- (9CI) (CA INDEX NAME)



RN 423774-71-4 CAPLUS

CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-hexyl-8-(tributylstannyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:515555 CAPLUS

DOCUMENT NUMBER: 131:244591

TITLE: A bichromophore based on perylene and terylene for energy transfer studies at the single-molecule level

AUTHOR(S): Schlichting, Peter; Duchscherer, Bettina; Seisenberger, G.; Basche, Thomas; Brauchle, Christoph; Mullen, Klaus

CORPORATE SOURCE: Max-Planck-Institut fur Polymerforschung, Mainz, D-55128, Germany

SOURCE: Chemistry--A European Journal (1999), 5(8), 2388-2395
CODEN: CEUJED; ISSN: 0947-6539

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A functionalized dialkylperylene and a modified terylenetetra-carboxylic diimide (TTCDI) were joined together by a hexanediyl spacer. The resulting bichromophoric mol. is a suitable model system for donor-acceptor energy transfer studies at the single-mol. level. With its absorption and fluorescence maximum at shorter wavelengths ($\lambda_{\text{max}} = 450$ nm, $\lambda_{\text{f}} = 458$ nm) the dialkylperylene acts as the donor, while the TTCDI with $\lambda_{\text{max}} = 665$ nm and $\lambda_{\text{f}} = 705$ nm is the acceptor mol. The synthetic route to the new bichromophoric mol. and its optical properties (UV/visible and fluorescence spectroscopy) are presented. Energy transfer from the perylene to the terylene moiety was confirmed by conventional ensemble fluorescence excitation and emission spectroscopy. Single mols. of the bichromophore embedded in poly(vinyl butyral) were imaged with a scanning confocal optical microscope at room temperature by selectively exciting the perylene chromophore and detecting the terylene emission.

IT 244168-59-0P

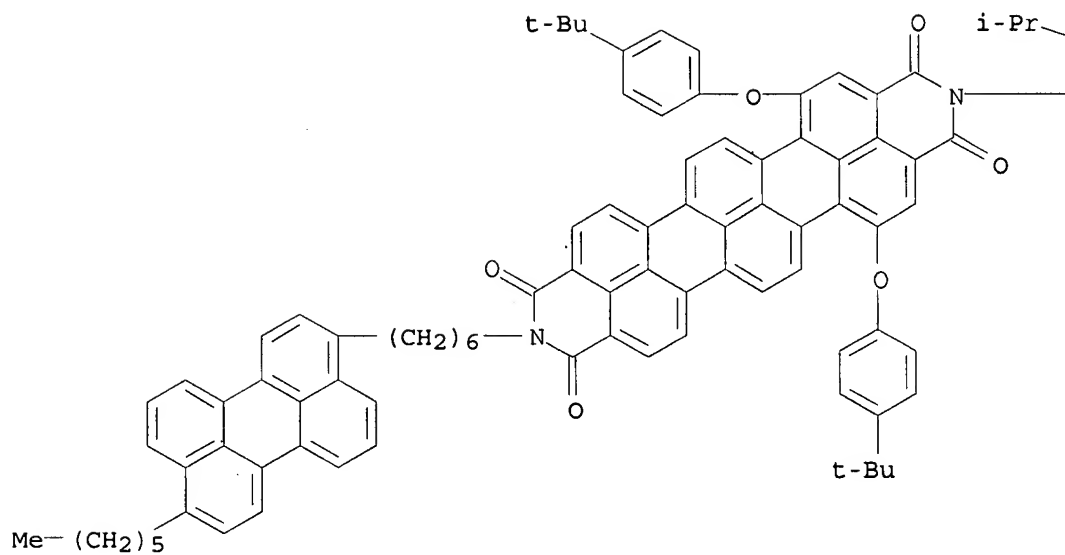
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dye; preparation of bichromophoric dye based on perylene and terylene for energy transfer studies at single-mol. level)

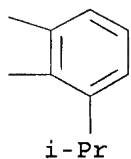
RN 244168-59-0 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2-[2,6-bis(1-methylethyl)phenyl]-5,17-bis[4-(1,1-dimethylethyl)phenoxy]-11-[6-(9-hexyl-3-perylenyl)hexyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



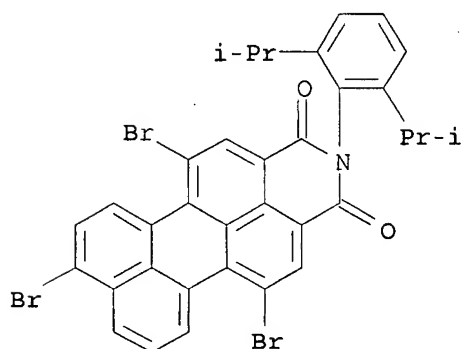
IT 165550-65-2P 165550-66-3P 187536-87-4P
244168-63-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)

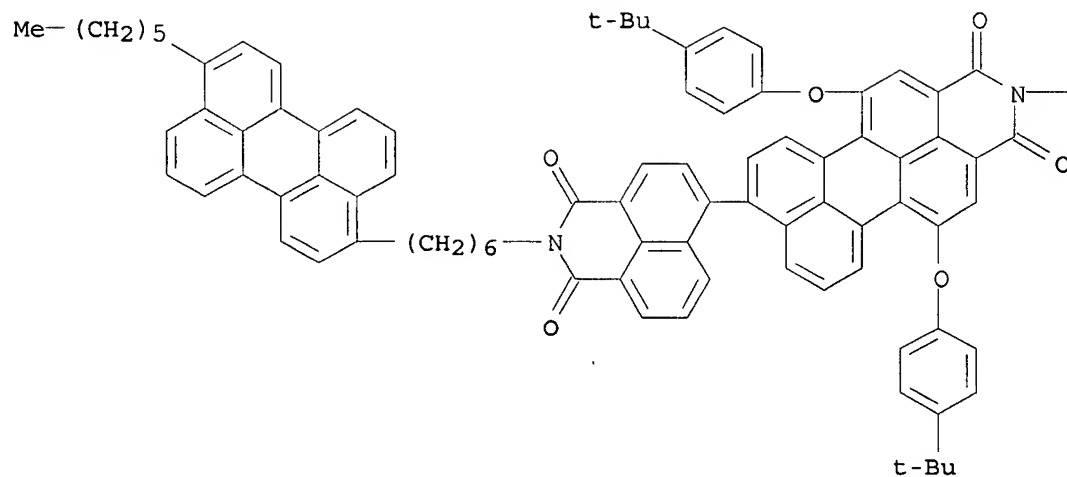
(intermediate; preparation of bichromophore based on perylene and terylene
for energy transfer studies at single-mol. level)

RN 165550-65-2 CAPLUS

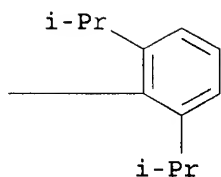
CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-
5,8,12-tribromo- (9CI) (CA INDEX NAME)



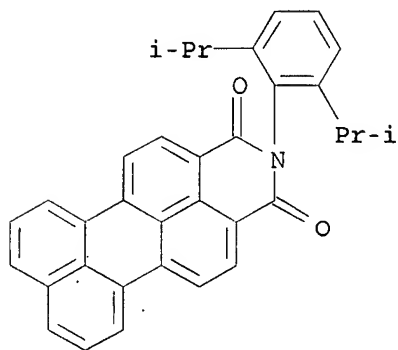
PAGE 1-A



PAGE 1-B



IT 165550-61-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting material; preparation of bichromophore based on perylene and
 terylene for energy transfer studies at single-mol. level)
 RN 165550-61-8 CAPLUS
 CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 2-[2,6-bis(1-methylethyl)phenyl]-
 (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 1999:163163 CAPLUS

10/586,133

DOCUMENT NUMBER: 130:244248
TITLE: Organic electric-field light-emitting device
containing terrylene imide
INVENTOR(S): Tamura, Shinichiro
PATENT ASSIGNEE(S): Sony Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|------|----------|-----------------|----------|
| JP 11067450 | A | 19990309 | JP 1997-217525 | 19970812 |
| PRIORITY APPLN. INFO.: | | | JP 1997-217525 | 19970812 |

OTHER SOURCE(S): MARPAT 130:244248

AB The device has an organic laminated structure having a terrylene imide derivative-containing light-emitting region between an anode and a cathode.

The device shows red light-emission with excellent color purity, luminance, and stability.

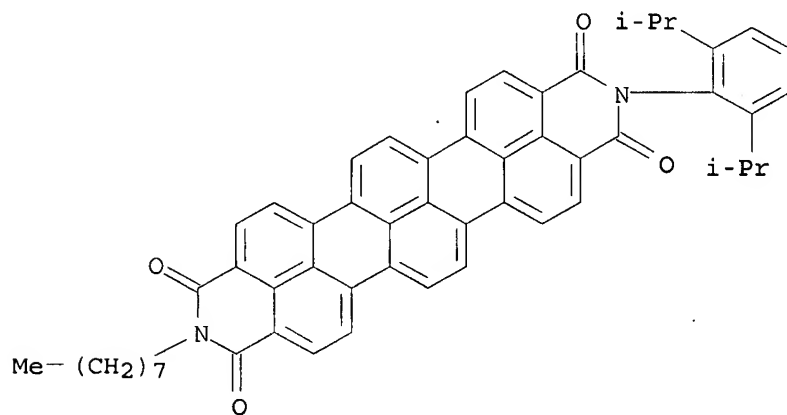
IT 187536-85-2P 187536-95-4P 187536-96-5P

RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(elec.-field red-light-emitting device containing terrylene imide)

RN 187536-85-2 CAPLUS

CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2-[2,6-bis(1-methylethyl)phenyl]-11-octyl- (CA INDEX NAME)

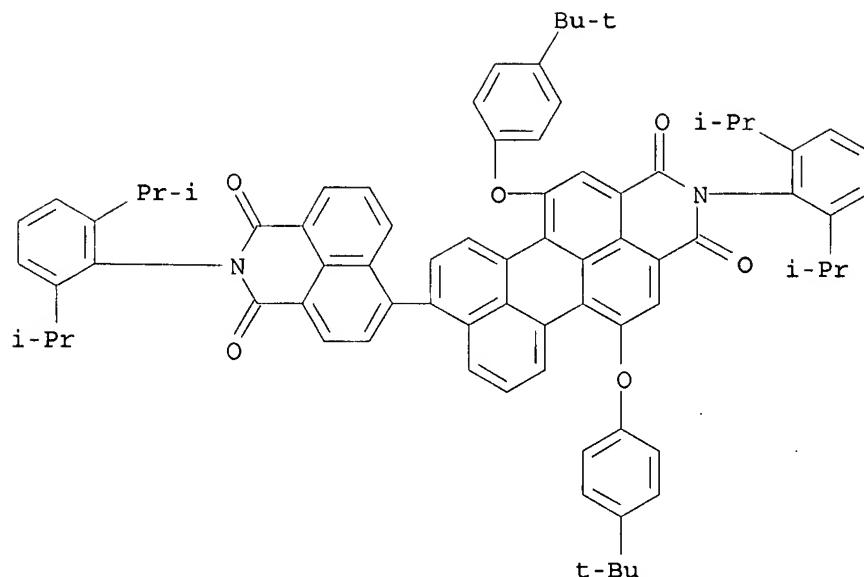


RN 187536-95-4 CAPLUS

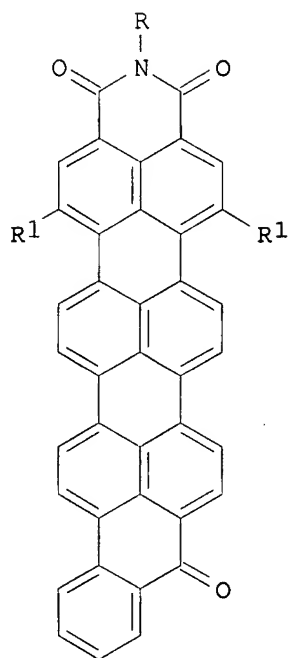
CN Benzo[13,14]pentapheno[3,4,5-def:10,9,8-d'e'f']diisoquinoline-1,3,10,12(2H,11H)-tetrone, 2,11-bis[2,6-bis(1-methylethyl)phenyl]- (9CI) (CA INDEX NAME)

10/586,133

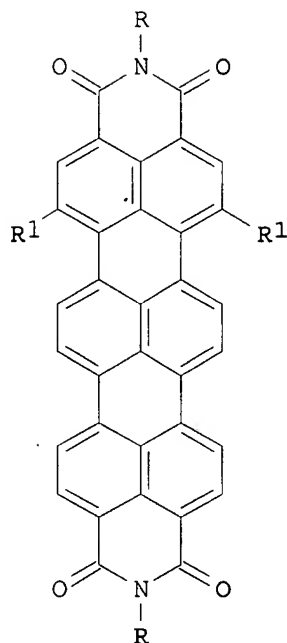
(CA INDEX NAME)



L9 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:187868 CAPLUS
DOCUMENT NUMBER: 126:187360
TITLE: Terrylenimides: new NIR fluorescent dyes
AUTHOR(S): Holtrup, Frank O.; Mueller, Gert R. J.; Quante,
Heribert; De Feyter, Steven; De Schryver, Frans C.;
Muellen, Klaus
CORPORATE SOURCE: Max-Planck-Institut Polymerforschung, Mainz, 55128,
Germany
SOURCE: Chemistry--A European Journal (1997), 3(2), 219-225
CODEN: CEUJED; ISSN: 0947-6539
PUBLISHER: VCH
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 126:187360
GI

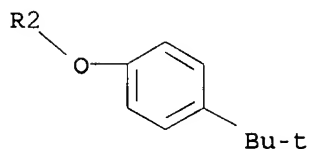
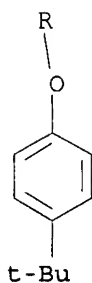


I



II

- AB Terrylenimides (I and II: R = alkyl, aryl; R1 = H, tert-butylphenoxy) represent a new class of blue colorants, exhibiting absorption maxima at 650 to 700 nm and fluorescence emissions in the NIR region (673 to 750 nm). The terrylenimides were synthesized by means of various organometallic coupling reactions, catalyzed by transition metal complexes (Ni0, Pd0) and starting from the aromatic bromides, boronic acids, or organotin compds. The terrylenimides have all the properties expected of excellent fluorescent dyes: high extinction yields, and very good thermal, chemical, and photochem. stabilities. Owing to its extended π system, I can reversibly accept four neg. charges. By varying the substituents, I and II can be modified to serve either as soluble dyes or as insol. pigments.
- IT 187536-77-2P 187536-79-4P 187536-82-9P
 187536-83-0P 187536-84-1P 187536-86-3P
 187536-87-4P 187536-89-6P 187536-92-1P
 187536-94-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (intermediate; preparation of terrylenimide near-IR fluorescent dyes)
- RN 187536-77-2 CAPLUS
- CN 1H-Perylo[3,4-cd]pyridine-1,3(2H)-dione, 5,6,11,12-tetrakis[4-(1,1-dimethylethyl)phenoxy]-8-(7-oxo-7H-benz[de]anthracen-3-yl)-2-propyl- (9CI)
 (CA INDEX NAME)



REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d his

(FILE 'HOME' ENTERED AT 12:43:50 ON 13 NOV 2007)

FILE 'REGISTRY' ENTERED AT 12:44:05 ON 13 NOV 2007

L1 STRUCTURE UPLOADED
L2 STRUCTURE UPLOADED
L3 2 S L1
L4 108 S L1 FULL
L5 21 S L2
L6 578 S L2 FULL

FILE 'CAPLUS' ENTERED AT 12:46:41 ON 13 NOV 2007

L7 22 S L4/PREP
L8 99 S L6/RCT
L9 15 S L7 AND L8

=> d l1

L1 HAS NO ANSWERS

L1 STR

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

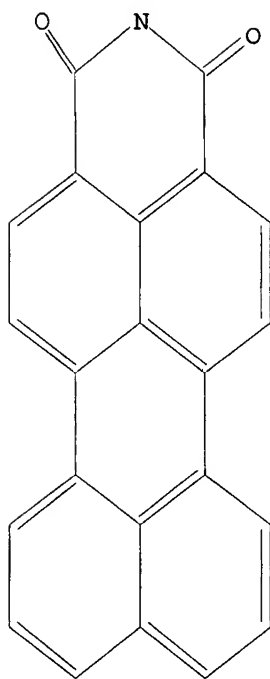
Structure attributes must be viewed using STN Express query preparation.

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L2 HAS NO ANSWERS

L2 STR

10/586,133



Structure attributes must be viewed using STN Express query preparation.

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